fixed standard, since the amount of loss will depend much on the particular kind of cloth, and upon the activity and habits of the wearer; and in such calculations it is to be considered that small boys occur in several sizes.

Mr. Glenn's theory of antidotes is in great measure correct, but it must be remembered that many so-called insolubles are soluble in the juices of the body. He goes on to say, "Chromic acid is a very active oxidizer. In contact with organic matter, it is quickly reduced to chromic oxide (a compound insoluble in any of the juices of the animal body). It is a destroyer of organic tissues, therefore. The action of both normal and acid alkali chromates is similar to chromic acid. They destroy organic matter by oxidizing it, chromic oxide being precipitated. . . . When such dust falls upon the mucous membrane, it is quickly reduced by the secretion it finds there, and chromic oxide is precipitated. The membrane is not attacked."

This theory of action is not the one which is held by those who consider chromic acid and chromates true irritant poisons, and as one of the latter persons I am again obliged to dissent. I cannot agree with Mr. Glenn as to the general effect or the local reactions. Wharton and Stillé (*Medical Jurisprudence*, 4th ed. vol. ii.), quoting a case of poisoning by the bichromate of potassium, in which, among other symptoms, suppression of urine occurred, remark, "The suppression of the urine is probably due to inflammation of the kidneys produced by the chromic acid." Falck (*Lehrbuch der practischen Toxikologie*, 1880) quotes a case where violent vomiting and intense abdominal pain occurred soon after the application of chromic acid to a cancerous breast. The patient lay pulseless, with cold skin and cyanotic face, constantly vomiting, to all appearances like a case of Asiatic cholera. Death occurred after several hours. A similar but non-fatal case is reported by Bruck.

These symptoms indicate absorption into the system, and not a mere local oxidation with precipitation of a harmless oxide. The symptoms in most of the reported cases of poisoning by chromic-acid compounds are very similar to the above; and these cases of Mosetig and Bruck are particularly valuable in that the poison was not swallowed, but absorbed from a broken surface.

Speaking of the deaths in Philadelphia following the ingestion of buns colored with chrome yellow, Mr. Glenn remarks, "No one familiar with the oxidizing action of chromic-acid salts, and accustomed to making combustions with lead chromate, would find much difficulty in believing that the small quantity of lead chromate taken by any one victim was reduced while in contact with organic matter in the stomach and intestines, chromic oxide passing out with the dejecta, and lead oxide being left to produce its cumulative effects." Again I cannot agree with him, and I think he would have no difficulty in finding many others who would refuse to believe that the poisonous effects of lead chromate are always due to the lead alone. Schuchardt says in *Maschka's Handbuch*, "Chromate of lead appears to act as a corrosive poison;" and again, "Chromate of lead appears to act more powerfully than the acetate." Wharton and Stillé say, "Although this substance is insoluble in water, and under many circumstances in the stomach and intestinal fluids, sometimes it gives rise to acute poisoning owing to its decomposition after it enters the body. That such a decomposition does occur, and that the chromium may be absorbed, is shown by R. C. Smith (*Brit. Med. Journ.*, 1882, p. 8), who reported a case in which chromic acid was detected in the urine: this was a case of professional poisoning, the patient being employed in weaving yarn colored with chrome-yellow." I will briefly quote another case bearing on this point, reported by Leopold (*Vierteljahrsschrift für gerichtl. Medicin und öffentl. Sanitätswesen*, Band xvii. 29). Four persons engaged some days weaving blankets colored with lead chromate were seized with symptoms of chronic lead-poisoning. During the work the yarn gave off so much dust, that their faces and hair were quite yellow. A two-weeks-old boy was kept in the same room, but was apparently protected by a covering of white woollen cloth. After seven weeks the child became suddenly very sick. Among other symptoms, it had several yellow diarrhœic discharges daily, with restlessness and frequent screaming, during which it dug its hands under the pillows. At first it would drink, but refused food: later on, it drank with some effort, and on the day of its death swallowed with difficulty. The lips were dry, respiration quickened, and death came slowly. On chemical examination after the autopsy, lead chromate was found in the respiratory tract and æsophagus, showing that the cloth had not been a sufficient protection. The rubber nipple which the child had used was found to be free from chromate, most probably because the dust which had adhered to it had been sucked off and swallowed. Among the post-mortem appearances was a perforation of the wall of the stomach. The death of this child was caused by exhaustion following perforation and softening of the stomach, brought on in consequence of swallowing chromate of lead. Neither the symptoms nor the post-mortem appearances could be ascribed to the influence of lead. Part of the chromate in the body was doubtless decomposed, and perforation followed. I agree with Mr. Glenn, that, "if dust from chrome-dyed yarn has any poisonous effects, weavers ought to have some knowledge of it."

Dr. Von Linstow (*Vierteljahrsschrift für gerichtl. Med. u. öffentl. Sanitätswesen*, Band xxi. 60) reports two deaths occurring in boys, aged respectively one and three-quarters and three and one-half years, who together ate six small objects made to represent bees, each piece containing 0.0042 of a centigram of chromate of lead. Both were seized with the same violent symptoms at the same time, a few hours afterward. Among other symptoms may be metioned diarrhœa, convulsions, stupor, great thirst, and difficult deglutition. The younger child died on the second, the elder on the fifth, day after seizure. Among other post-mortem appearances observed in the elder child were destruction of the mucous membrane of the stomach in several places, and ulceration, and perforation of the duodenum. In both cases there was fatty degeneration of the liver. In the younger child there was no perforation, but the mucous membrane of the stomach was marked throughout with red points, and showed velvet-like, opaque swelling. The duodenal mucous membrane was pale, with occasional bloody points. Would anybody think of ascribing these symptoms and post-mortem appearances to lead oxide?

In conclusion, I join Mr. Glenn in the hope that investigation into the subject of chrome-poisoning will not be allowed to die of neglect.

Charles Harrington, M.D.

Chem. Dept. Harv. Med. Sch., Aug. 12.

Poison Fangs and Glands of the Mosquito.

The general arrangement of the mouth of the female mosquito is well described by Dimmock on 'the mouth-parts of the *Diptera*.' The under lip is a large hairy tube, 2 millimetres long, open above, and serving as a sheath for the piercing-apparatus, whilst it is itself terminated by two sensitive labellæ, and by a central lancet-like ligule. Within the structure of the sheath are a large nerve, a pair of longitudinal muscles and many oblique muscles, two large tracheæ by which air can be admitted (so as to distend the organ as in *Musca*), and long filiform tendons which arise at the base of the sheath and support the terminal labellæ.

The piercing-apparatus is enclosed during rest in a strong-pointed upper lip (*labrum*) which is grooved inferiorly for their reception, and which along with them is received into the sheath-like under lip. Within this labrum are the two maxillæ, very sharp and barbed near the tip, and able to play back and forward like saws; also two mandibles, a fine styliform hypopharynx, a delicate sheath for the front segment of the œsophagus, and the œsophagus itself. The last-named organ is received within the head into a strong box-like pharynx, which is well supplied with muscles and is a suction organ. The pharynx draws in blood (and probably vegetable plasm), which it transmits by the long post-pharyngeal part of the œsophagus to the stomach lying in the abdomen of the insect.

The poison-apparatus, which hitherto has been an unknown quantity, is connected with the two mandibles. Each mandible has a large funnel-shaped base, into which is inserted the end of a poison-duct. The thickened axis of the mandible is pierced by a fine canal, which opens just below the sharp apex. The structure reminds one of a bee's sting, saving that it is duplicated. We can by pressure drive out some of the contents and observe them issuing at the sub-terminal orifice. It is probable that when the lancets pierce an object this fang-like mechanism may, by pressing on its base, automatically discharge a portion of the poison. The poison

seems by inflaming the tissues to determine a flow of blood, and also to prevent the coagulation of blood or other proteid. (The blood subsequently coagulates in the mosquito's stomach.)

The poison-duct resembles a trachea in being transversely striated, but differs by the uniform diameter of its tubule of about 6 micromillimetres, by the absence of fine ramifications, and by the great thickness of its wall. The two ducts, proceeding one to each mandible, arise by the bifurcation of a common duct in the region of the neck below the œsophagus. Behind this the difficulty of dissection is considerable, as the parts are so small that they cannot be followed with low microscopic power; they are greatly entangled among the large muscles, tracheæ, and other furniture of the prothorax, and they are easily torn so as to be lost to the search. I have succeeded, however, by working back from the neck, in spreading out the entire system. The common duct arises from three prothoracic glands, all sessile on its lower extremity like the leaves of a trefoil, each supplied with a precurrent ductlet, the three ductlets meeting at a point so as to form the common duct. The glands are each about one-third of a millimeter in length and one-twenty-fifth in diameter. The two lateral glands are of the usual salivary kind common to insects. The central or azygos gland is entirely different, scarcely lobed, but being a mass of brown evenly distributed granules, with oil-like globules intermingled, its ductule having finer walls than in the lateral glands. We may regard this as emphatically the poison-gland, but the intermingled products of all three have their only outlet by the common duct, and thence by its two branches to the mandibles, which therefore play the part of 'poison-fangs.'

Some tentative notes recently given before the American Association involved inaccuracies, which are here rectified and the work completed. Measurements given above are from a small species which may perhaps be identified by its maxillary palps being as long as the maxillæ themselves. They seem to be the same for all the common species. G. MACLOSKIE.

Aug. 20.

Rockwood Meteorite.

ABOUT the middle of March last there was found by Mr. Elihu Humbree, on land owned by Mr. W. B. Lenoir, eight and one-half miles west of Rockwood Furnace, Cumberland county, Tenn., several pieces of what has proved to be a meteorite of very great interest, belonging to the rare class of siderolites, resembling in general appearance the Atacama but differing very widely in the nature of the silicate.

When first found it excited the curiosity of Mr. Humbree, and, after much pounding with an axe, he succeeded in detaching several large pieces and many fragments without finding the large lump of silver in it for which he was looking, the bright specks of nickeliferous iron scattered through the mass having been mistaken by him for that metal.

Three or four weeks later Mr. Lenoir, suspecting the nature of the find, secured the whole of it (with the exception of some small pieces which had been given to friends), and forwarded samples to us for examination. Two or three weeks later, on the 2d of June, I visited Rockwood, and brought the entire find away with me, with the exception of the small pieces already mentioned: these have nearly all been gathered up since and are now in our possession.

The main mass is an irregular ellipsoid, with one side a little flattened, and noticeable by the almost entire absence of the usual pittings, which are present elsewhere on the surface.

The three greatest dimensions are $14\frac{3}{4} \times 10 \times 8\frac{1}{2}$ inches. The weight, which owing to the loss of some of the fragments cannot be determined accurately, was about 83 pounds. Three other smaller masses bring the weight of the entire find to fully 100 pounds (probably two or three pounds more), of which to the present time we have secured $96\frac{1}{2}$ pounds. Specimens have been submitted to Prof. F. W. Clarke of the U. S. National Museum for examination, and very full analyses by Mr. J. E. Whitfield will be published as soon as the work is completed. The analyses thus far made show it to be in the main a silicate of alumina, lime, magnesia, and ferrous oxide, — probably in the form of anosthite and augite, with no olivine. Further analyses are being made to clear up this point. The iron grains contain 12 per cent of nickel, with a trace of copper, and, so far as examination has gone, seem to be distributed through the mass quite evenly; one nodule of iron, however, has been observed which measures three-quarters of an inch in diameter, and exhibits the Widmannstadtian figures very characteristically on the etched surface. Other nodules of iron equally large will probably be met with by further cutting. Although the analysis shows an unusually large amount of chlorine present, decomposition has only affected the surface and in the seams, and has been so little that the original black crust is preserved over a considerable portion of it.

This brings us to the interesting question of how long it could have been exposed to the action of the weather, and it is possible some readers of *Science* can help us to determine that important point.

In the late autumn of 1880, between five and six o'clock in the afternoon, a meteor was seen passing to the north-west over Morgan county, Georgia, which "left a dense trail, not very wide, of light-colored smoke, which could be seen for at least half an hour, and which gradually spread out thin and woolly, like ordinary smoke." A loud report, thought to be about three minutes after the passage of the meteor, was heard by persons who did not see it, as well as by those who were fortunate enough to observe its flight. It would be very interesting if a connection could be traced between this meteor and the meteorite found in Tennessee. If they are the same, it would seem that it should have been seen and heard by different persons all along the line. Any information on this subject will be thankfully received. EDWIN E. HOWELL.

Rochester, N.Y., Aug. 22.

Swill-Milk.

I HAVE read the discussion about 'swill-milk' recently published in *Science* with great interest, especially as I had thought the unhealthiness of distillery-slops as food for animals had been settled and agreed to fifty years ago. Will you permit me to cite an experience of my own bearing on the question? About fifty years ago, — I cannot give the precise date, — I worked in a 'pork-house' one winter, during which I trimmed the hams of five hundred 'still-fed' hogs. It was admitted by all hands that there was not a sound hog in the lot. But few of them were well fatted, although their appearance was good. It was not at all an uncommon thing, in cutting up a hog, to cut through an abscess, varying in size from a cherry to a half-pint; the largest one being in the region of the kidneys. The kidneys and 'tenderloin,' which lies along the vertebra in the region of the kidneys, were invariably infested with kidney-worms, and I have never had any desire to eat tenderloin since.

The testimony of all packers in that section of country — the Miami Valley — was that all still-fed hogs were similarly diseased, though not generally so badly as this lot. The meat was soft and oily, — unfit for barrel-pork.

Some years afterwards, upon my removal to this city, I called upon the butcher of whom I purchased my meat, who was an intelligent man, and asked him if he found the livers of well-fatted cattle in a healthy condition. His answer was no, that it was very rarely that the liver of a well-fatted beef was fit for human food, especially still-fed cattle. They, he asserted, were always diseased; and he added that he never bought still-fed cattle unless they had been taken off slops and fed on corn some weeks before being killed. He asserted that he could distinguish between still-fed and corn-fed beef, after it was slaughtered, by the sight and touch.

JOHN J. JANNEY.

Columbus, O., Aug. 19.

The Pronunciation of 'Arkansas.'

IT is really exasperating to be obliged to explain and apologize every time one pronounces this word correctly in intelligent New England circles, where the later and improper pronunciation was invented and has been established parasitic upon our nomenclature. Had not the Legislature of the State officially declared the final syllable to properly have the sound of *saw*, not *sass*, or had not the inhabitants, from earliest settlements, to say nothing of the people